

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Tadashi CHIBA, et al.

Appln. No.: Not yet assigned

Confirmation No.: Not yet assigned

Group Art Unit: Not yet assigned

Filed: January 22, 2002

Examiner: Not yet assigned

For: AUTOMATIC ANALYSIS AND CONTROL SYSTEM FOR ELECTROLESS
COMPOSITE PLATING SOLUTION

PRELIMINARY AMENDMENT

Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please enter the following amended claims:

3. (Amended) An automatic analysis and control system according to claim 1, wherein the combination of the measurement wavelengths is obtained by selecting at least one measurement wavelength in a wavelength range of 250 to 350 nm or 450 to 550 nm, and selecting at least one other measurement wavelength not overlapping with said at least one measurement wavelength in a wavelength range of 350 to 450 nm or 550 to 880 nm.

4. (Amended) An automatic analysis and control system according to claim 1, wherein a measuring time table is so set that a standing time of not less than 15 sec is secured

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after the automatic introduction of said plating solution into said analytical cell and before the start of measurement of the transmissivity or absorbance.

5. (Amended) An automatic analysis and control system according to claim 1, wherein a function of periodically introducing pure water into said analytical cell to wash said analytical cell and measuring the transmissivity or absorbance at a set measurement wavelength in the condition where said cell is filled with pure water is provided, and the thus measured value is used as a reference value of 100% transmissivity or absorbance zero relative to measured value of transmissivity or absorbance of said plating solution measured in the period before the next similar measurement for pure water.

6. (Amended) An automatic analysis and control system according to claim 1, wherein a vertically elongate plating solution dwell portion having a cross sectional area of not less than two times of the cross sectional area of a sampling pipe is provided in the course of a sampling passage for introducing said plating solution into said analytical cell, an inlet to said plating solution dwell portion is provided at an upper portion, and an outlet from said plating solution dwell portion is provided at a lower portion, whereby a trap mechanism for preventing fine bubbles in said plating solution from being fed into said analytical cell is provided.

7. (Amended) An automatic analysis and control system according to claim 1, wherein said electroless composite plating solution is an electroless composite nickel plating solution, and the nickel component in said plating solution is measured.

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REMARKS

The claims have been amended to delete the multiple dependency. Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,

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APPENDIX

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

The claims are amended as follows:

3. (Amended) An automatic analysis and control system according to claim 1 [or 2], wherein the combination of the measurement wavelengths is obtained by selecting at least one measurement wavelength in a wavelength range of 250 to 350 nm or 450 to 550 nm, and selecting at least one other measurement wavelength not overlapping with said at least one measurement wavelength in a wavelength range of 350 to 450 nm or 550 to 880 nm.

4. (Amended) An automatic analysis and control system according to [any one of claims 1 to 3] claim 1, wherein a measuring time table is so set that a standing time of not less than 15 sec is secured after the automatic introduction of said plating solution into said analytical cell and before the start of measurement of the transmissivity or absorbance.

5. (Amended) An automatic analysis and control system according to [any one of claims 1 to 4] claim 1, wherein a function of periodically introducing pure water into said analytical cell to wash said analytical cell and measuring the transmissivity or absorbance at a set measurement wavelength in the condition where said cell is filled with pure water is provided, and the thus measured value is used as a reference value of 100% transmissivity or absorbance zero relative to measured value of transmissivity or absorbance of said plating solution measured in the period before the next similar measurement for pure water.

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6. (Amended) An automatic analysis and control system according to [any one of claims 1 to 5] claim 1, wherein a vertically elongate plating solution dwell portion having a cross sectional area of not less than two times of the cross sectional area of a sampling pipe is provided in the course of a sampling passage for introducing said plating solution into said analytical cell, an inlet to said plating solution dwell portion is provided at an upper portion, and an outlet from said plating solution dwell portion is provided at a lower portion, whereby a trap mechanism for preventing fine bubbles in said plating solution from being fed into said analytical cell is provided.

7. (Amended) An automatic analysis and control system according to [any one of claims 1 to 6] claim 1, wherein said electroless composite plating solution is an electroless composite nickel plating solution, and the nickel component in said plating solution is measured.